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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,477	07/06/2001	Jung-Hong Kao	M-12276 US	4181

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EXAMINER	
CHO, HONG SOL	

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/900,477	KAO ET AL.	
	Examiner	Art Unit	
	Hong Cho	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-9 and 13-21* is/are rejected.

7)☒ Claim(s) *3,10-12 and 22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 June 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06022005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to the amendment filed on 6/2/2005. Claims 1-22 are pending in the instant application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 2, 4-6, 13-16, and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yim (USPUB 2003/0206527) in view of Hluchyj et al (U.S 5426640), hereinafter referred to as Hluchyj.

For the purpose of the examination, the transit delay is measured by the amount of traffic in a transit buffer for a given node as described in the specification.

Re claims 1, 16, and 19- 21, Yim discloses a method for transmitting a data message from an originating node to a destination node by utilizing the monitored information on the available ring capacity and the data flow rate or traffic loading on

each ring (*a method for servicing transmit traffic in a node of a network, the network including a plurality of nodes connected by first and second rings formed by two or more transmission media*, paragraph [0005-0009], figure 3). Yim discloses the look-up table containing information about the number of ring links along which a data message (*receiving a packet for routing to the network*) has to travel along each ring between the nodes to reach its destination so that the shortest route for the data message can be determined (*determining a shortest path to a destination node including identifying one of the first and second rings as being associated with the shortest path*, paragraph [0021]). Yim discloses selecting another ring when one ring contains a lot of traffic and is congested (*determining if the identified one of the first and second rings is more congested than the other of the first and second rings,* paragraph [0021]). Yim does not disclose determining if the identified one of the first and second rings is more congested than the other of the first and second rings by using the transit delay data, associated with a plurality of downstream nodes, received from a downstream node. Hluchyj discloses providing a source node with a packet containing a congestion level measured by the depth of transit queues (*transit delay data*) in each node along the path (column 4, lines 33-35; 38-42). It would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the teaching of Hluchyj in determining congestion level by measuring the depth of transit queues into Yim so that congested information is used to select the other ring with less congestion for routing a packet and thereby reduce network congestion and improve network utilization.

Re claims 2 and 4, Yim discloses all of the limitations of the base claim, but fails to disclose determining transit delay data for the node, appending the transit delay data for the node to the received transit delay data and forwarding the transit delay data including appended transit delay data to an upstream node. However, it is well known in the art that the overall transit delay data for a given time period along a path/route is measured by the summation of a transit delay data in each node. Hluchyj discloses determining transit delay data for the node (column 4, lines 38-42) and forwarding the transit delay data as indicated by a congestion level by summing changes of all the nodes traversed by a path at a given time (*appending the transit delay data for the node to the received transit delay data and forwarding the transit delay data including appended transit delay data to an upstream node in the form of a plurality of vectors*, column 3, lines 53-63). It would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the teaching of Hluchyj in determining congestion level along a path by receiving an accumulated transit delay data from downstream nodes and forward the transit delay data to an upstream node to improve network utilization by implementing dynamic congestion control scheme.

Re claim 5, Yim discloses all of the limitations of the base claim, but fails to disclose receiving usage data including transit delay data from 32 downstream nodes. However, Yim discloses adjusting the number of nodes in his system by using Scalable Coherent Interfaces (SCIs). Hluchyj discloses providing a source node with a packet containing a congestion level measured by the depth of transit queues (*transit delay data*) in each node along the path (column 4, lines 33-35; 38-42). Therefore, it would have

been obvious to one having ordinary skill in the art at the time the invention was made to adjust Yim's system to have 32 nodes and implement the teaching of Hluchyj on receiving transit delay data so that received congested information is used to select the other ring with less congestion for routing a packet and thereby reduce network congestion and improve network utilization.

Re claim 6, Yim discloses selecting another ring when one ring contains a lot of traffic and is congested (*determining if the identified one of the first and second rings is more congested than the other of the first and second rings,* paragraph [0021]). Yim does not disclose determining if the identified one of the first and second rings is more congested than the other of the first and second rings by using a latency metric, indicative of a delay between the node and the destination node. Hluchyj discloses providing a source node with a packet containing a congestion level (*latency metric*) measured by the depth of transit queues in each node along the path (*indicative of a delay between the node and the destination node,* column 4, lines 33-35; 38-42). It would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the teaching of Hluchyj in using a latency metric into Yim so that the latency metric is used to select the other ring with less congestion for routing a packet. The motivation is to have dynamic congestion control scheme implemented to improve network utilization.

Re claims 13 and 14, Yim discloses determining the shortest routing path based on the look-up table that contains information about the number of ring links along which a data message has to travel along (paragraph [0021], lines 3-7). Yim doest not disclose

checking if the destination node is more than 32 hops away from the source node and if so routing the packet to the destination node based on the shortest path. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust Yim's system to use a predefined number of hops, 32, as a threshold number in determining the shortest routing path so that the shortest routing path is selected if the destination node is less than 32 hops away from the source node. The motivation to combine is to reduce routing operations in selecting the shortest path by only checking if a given routing path is longer than 32 hops.

Re claim 15, Yim discloses determining if a break has been detected in the network on one of the first and second rings, and if so routing the packet to the destination node based on the shortest path (paragraph [0016]).

Claims 7-9, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yim in view of Hluchyj and further in view of Wilson (USPUB 20010032269).

Re claims 7 and 8, Yim discloses all of the limitations of the base claim, but fails to teach determining an average transit delay for each the plurality of nodes, the average transit delay computed as the average of a previously determined average transit delay for a given node and newly received delay data associated with the given node. Wilson discloses calculating a running average of queue depth (paragraph [0011], lines 18-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Yim to use the algorithm of Wilson in measuring the

average transit delay as a running average transit delay so that it would provide a better indication of congestion level experienced at each node for reduction of severe congestion.

Re claims 9 and 17, Yim discloses all of the limitations of the base claim, but fails to teach determining if the identified one of the first and second rings is more congested than the other of the first and second rings by using the average transit delay data computed for each of the plurality of downstream nodes. Hluchyj discloses providing a source node with a packet containing a congestion level measured by the depth of transit queues (*transit delay data*) in each node along the path (column 4, lines 33-35; 38-42). It would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the teaching of Hluchyj in determining congestion level by measuring the depth of transit queues into Yim so that congested information is used to select the other ring with less congestion for routing a packet and thereby reduce network congestion and improve network utilization. Neither Yim nor Hluchyj fails to teach determining an average transit delay for each the plurality of nodes, the average transit delay computed as the average of a previously determined average transit delay for a given node and newly received delay data associated with the given node. Wilson discloses calculating a running average of queue depth (paragraph [0011], lines 18-20). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Yim to use the algorithm of Wilson in measuring the average transit delay as a running average transit delay so that it would provide a better

indication of congestion level experienced at each node for reduction of severe congestion.

Re claim 18, Yim discloses all of the limitations of the base claim, but fails to teach weighting the average transit delay based on the number of hops between the node and the given destination. It would have been obvious to one having ordinary skill in the art at the time the invention was made to measure the average transit delay data based on the number of hops between the node and the given destination.

Response to Arguments

4. Applicant's arguments filed on 6/2/2005 have been fully considered but they are not persuasive.

On page 10 Applicants argue that Yim neither teaches nor suggests the applicant's identifying a ring based on a shortest path. Examiner respectfully sees this argument as irrelevant because it is directed to the subject that was not directly claimed. The claim does not specify that a ring be selected based on a shortest path. Applicants further argue that the Examiner failed to establish a prima facie case of obviousness by stating that one having ordinary skill in the art would not be motivated to look beyond Yim itself since Yim alone already teaches using congestion information to select a ring. Examiner respectfully sees this argument as misplaced. Examiner relied on Hluchyj in utilizing transit delay data as a mean of indicating congestion level.

Therefore, the Examiner concludes that the rejection of claims is proper.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-3088.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hc
Hong Cho
Patent Examiner
8/4/2005

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